



Issue 152 | July 3, 2014 | Focus on WASH and Nutrition

This issue features two recent webinars on WASH and nutrition and conference presentations on access to water and stunting, the use of tippy taps, and other topics. Featured reports include the recently launched USAID nutrition strategy and a study on stunting in Egypt. Journal articles include three recent reviews that discuss the health and other impacts of WASH interventions, the use of fermented foods to treat diarrhea in children, and the gut microbiomes of children of varying nutritional status.

WEBINARS

June 25, 2014, WASH, Nutrition and Early Childhood Development: New Evidence in ECD and Findings from the Field. ([Webinar|Presentations](#))

Presenters at this webinar included Jenny Ogle, CARE's program director for the Nutrition at the Center Program, who talked about how her program addresses environmental enteropathy, and Professor Maureen Black, Department of Pediatrics, University of Maryland School of Medicine, who discussed new evidence linking nutrition and early child development and its connection to WASH. The webinar was co-hosted by WASHplus and the USAID WASH and Nutrition Community of Practice, and was moderated by Helen Petach, USAID, Bureau for Global Health, Office of Health Infectious Diseases and Nutrition.

June 30, 2014 – Webinar on WASH and the USAID Nutrition Strategy. ([Link](#))

The recently released USAID Multi-Sectoral Nutrition Strategy is an important step toward improving nutrition efforts in USAID programs. This WASH Advocates and 1,000 Days webinar on the new strategy explores the relationship between WASH and nutrition, the process of creating the nutrition strategy, and implications for practical application of WASH and nutrition in the field.

PRESENTATIONS

Reducing Environmental Enteropathy and Child Growth Faltering: An Intervention Trial Update. A presentation by Steve Luby at FHI 360 on June 19, 2014. ([Link](#))

This presentation provides an overview of the evidence that fecal environmental contamination causes stunting. Because stunting is more common where there is more environmental fecal contamination, animal husbandry, biological plausibility, and food hygiene may be particularly important areas for attention.

Use of Tippy Taps in Rural Bangladesh: Integration into Nutrition Activities.

American Public Health Association (APHA) Annual Conference 2014. A Hawkins. ([Abstract](#))
Tippy taps are affordable and simple solutions to address hand hygiene in rural households. Significant impacts on hand washing behavior have already been seen, most likely because these devices serve as a visual reminder and reduce time needed to wash hands. Their use was strongest when complemented by other behavior change interventions and when promoted through village-level groups that provided positive reinforcement.

Access to Piped Water and Childhood Stunting in India. APHA Annual Conference 2014. R Parekh. ([Abstract](#))

The results of this study revealed an association between access to piped water supply and stunting in India. Approximately 25 percent of children in households with access to piped water supply suffered stunting compared to 75.4 percent of children in households without access to piped water, a statistically significant difference.

REPORTS/BLOG POSTS

USAID Multi-Sectoral Nutrition Strategy 2014–2025. USAID. ([Link](#))

With this strategy USAID aims to decrease chronic malnutrition, measured by stunting, by 20 percent through the U.S. Government's Feed the Future and Global Health initiatives, the Office of Food for Peace development programs, resilience efforts, and other nutrition investments. Within Feed the Future targeted intervention areas, USAID will concentrate resources and monitor impact to reduce the number of stunted children by a minimum of 2 million.

Examining Factors Associated with Stunting in Lower Egypt in Comparison to Upper Egypt: Bridging the Gap between Cultural Beliefs and Feasible Feeding Practices through Trials for Improved Practices, 2014. J Kavle. USAID MCHIP. ([Link](#))

The aim of this operations research study was to understand how mothers' behaviors, perceptions, and cultural beliefs impact dietary intake and feeding practices in stunted and nonstunted Egyptian children from 0–23 months of age. The study revealed a lack of understanding of the link between poor growth and feeding, illness, and stunting.

Persisting Consequences of Intestinal Infection, 2014. P Heidt. ([Link](#))

The inner lining of the gut is a simple epithelium that completely self-renews every five days because of high mechanical and chemical stress. At the basis of the epithelial homeostasis are intestinal stem cells that are located at the bottom of crypts. This report describes and summarizes the recent developments in the identification and characterization of intestinal stem cells.

Linking WASH and Nutrition Strategies for More Sustainable Outcomes. *Nutrition Newsroom*, June 2014. J Teague, WASH Advocates. ([Link](#))

Both WASH and good nutrition are important for education, economic growth, and healthy populations, as evidenced by two recently released USAID strategies: the Water and Development Strategy and the Multi-Sectoral Nutrition Strategy.

A Success Story: SHARE Contribution to Food Hygiene. *SHARE Blog*, July 2014. ([Link](#))

Recognizing the importance of food hygiene in the prevention and control of fecally transmitted disease, and the need to build a stronger evidence base to support this, SHARE has funded three studies in this area in Bangladesh, Nepal, and The Gambia.

Explaining Obstacles to 'Total Sanitation' in India with Spatial Methods: Evidence from the District Level Household Survey, 2014. G Pierce. ([Link](#))

Inadequate toilet use directly contributes to high rates of morbidity and mortality in India. Despite a strong research focus on sanitation solutions, understanding of the determinants of toilet use in India is remarkably poor. This paper uses spatial analysis techniques to explain variation in sanitation use at the district scale. A test of global spatial autocorrelation confirms that sanitation use is strongly clustered geographically, and spatial clustering remains robust after controlling for socio-economic explanations.

Rice Bran: A Food Ingredient with Global Public Health Opportunities, 2014. E Borresen. ([Link](#))

The chapter from "Wheat and Rice in Disease Prevention and Health" explains how an underutilized food ingredient, namely rice bran, could become the next simple, yet significant, opportunity in global health, nutrition, and food security. Even though challenges are apparent to increase dietary rice bran in the global food market, they merit attention and scientific as well as technological innovation.

JOURNAL ARTICLES

Malnutrition Damages Gut Bacteria. *BBC News*, June 2014. ([Link](#))

Child malnutrition has long-term effects on gut health that affect development even after treatment, a study suggests. A team studied the gut health of malnourished children in Bangladesh. Writing in the journal *Nature* researchers explain that bacterial make-up was not fully restored to normal even after food supplements were given. They say the finding might explain why children often fail to grow normally even after treatment.

The Impact of Antibiotics on Growth in Children in Low and Middle Income Countries: Systematic Review and Meta-Analysis of Randomised Controlled Trials. *BMJ*, Apr 2014. E Gough. ([Link](#))

Antibiotics have a growth promoting effect in prepubertal children in low and middle income countries. This effect was more pronounced for ponderal than for linear growth. The antibiotic growth promoting effect may be mediated by treatment of clinical or subclinical infections or possibly by modulation of the intestinal microbiota. Better definition of the mechanisms underlying this effect will be important to inform optimal and safe approaches to achieving healthy growth in vulnerable populations.

Assessing the Impact of Drinking Water and Sanitation on Diarrhoeal Disease in Low- and Middle-Income Settings: Systematic Review and Meta-Regression. *Trop Med Intl Health*, Aug 2014. J Wolf. ([Link](#))

Overall, improvements in drinking water and sanitation were associated with decreased risks of diarrhea. Specific improvements, such as the use of water filters and the provision of high-quality piped water and sewer connections, were associated with greater reductions in diarrhea compared with other interventions. The results show that inadequate water and sanitation are associated with considerable risks of diarrheal disease and that there are notable differences in illness reduction according to the type of improved water and sanitation implemented.

Improving and Monitoring the Health Impact of Water, Sanitation and Hygiene Interventions in Developing Countries, 2014. H Mosler, EAWAG. ([Link](#))

Some of the recommendations from this report: 1) Assessing which pathways are most relevant for disease transmission in a specific local setting could be a very useful basis for effective project planning; 2) Invest more in projects with the major objective of improving sanitation in combination with hygiene (also food hygiene); 3) Projects targeting water for public health outcomes should increase the focus on water quality improvements at point of use; and 4) Projects targeting sanitation are probably more effective in (poor) urban settings.

Burden of Disease from Inadequate Water, Sanitation and Hygiene in Low- and Middle-Income Settings: A Retrospective Analysis of Data from 145 countries. *Trop Med Intl Health*, Aug 2014. A Prüss-Ustün. ([Link](#))

In 2012, 502,000 diarrhea deaths were estimated to be caused by inadequate drinking water and 280,000 deaths by inadequate sanitation. The most likely estimate of disease burden from inadequate hand hygiene amounts to 297,000 deaths. In total, 842,000 diarrhea deaths are estimated to be caused by this cluster of risk factors, which amounts to 1.5 percent of the total disease burden and 58 percent of diarrheal diseases. In children under 5 years old, 361,000 deaths could be prevented, representing 5.5 percent of deaths in that age group. This estimate confirms the importance of improving water and sanitation in low- and middle-income settings for the prevention of diarrheal disease burden. It also underscores the need for better data on exposure and risk reduction that can be achieved with provision of reliable piped water, community sewage with treatment, and hand hygiene.

Antidiarrheal Effect of Food Fermented by Various Strains of Lactobacillus.

Comprehensive Reviews in Food Science and Food Safety, March 2014. A Shafi. ([Link](#))

Various Lactobacillus species possess antidiarrheal properties due to their probiotic effects and could be used in the form of fermented foods for the treatment of diarrheal disease. Recent studies have demonstrated the effectiveness of the natural mode (fermented food) of disease management because of its easy availability, low cost, and efficacy against diarrhea.

Gut Microbiomes of Indian Children of Varying Nutritional Status. *PLoS One*, Apr 2014. T Ghosh. ([Link](#))

This study envisioned interrelationships between the pattern of the gut microbiome and the nutritional status of children. The cause of this pattern needs to be explored. However, insights obtained from the present study form the basis for further metagenomic investigations on larger populations of children. Results of such studies will be useful in identifying the key microbial groups that can be used for targeted therapeutic interventions for managing severe acute malnutrition.

Reducing Occurrence of Giardia Duodenalis in Children Living in Semiarid Regions: Impact of a Large Scale Rainwater Harvesting Initiative. *PLoS Neglected Tropical Diseases*, June 2014. J Fonseca. ([Link](#))

In Brazil, about 2 million people living in rural, semiarid regions were provided with rainwater cement cisterns as part of the "One Million Cisterns" initiative. Ownership of a rainwater cistern is associated with a lower prevalence of G. duodenalis infection in children after adjustment for environmental and family-related factors.

Influence of Nutrition on Infection and Re-Infection with Soil-Transmitted Helminths: A Systematic Review. *Parasites and Vectors*, (7) 2014. P Yap. ([Link](#))

The relationship between nutrition and soil-transmitted helminthiasis is complex and warrants further investigation. This study conducted a systematic review examining the influence of nutrition on infection and re-infection with soil-transmitted helminths (i.e., Ascaris

lumbricoides, hookworm, *Trichuris trichiura*, and *Strongyloides stercoralis*) in humans. Emphasis was placed on the use of nutritional supplementation, alongside anthelmintic treatment, to prevent re-infection.

Correlates of Stunting Among Children in Ghana. *BMC Public Health*, May 2014. EKM Darteh. ([Link](#))

In this study, the age of a child was a significant determinant of stunting with the highest odds of stunting occurring among children aged 36–47 months. Children from the Eastern Region were more likely to be stunted than children from the Western Region. The number of children in the household was significantly related to stunting. Children in households with 5–8 children were 1.3 times more likely to be stunted compared to those with 1–4 children. Mother’s age was a significant predictor of stunting as well; children whose mothers were aged 35–44 years were more likely to be stunted.

WASHplus Weeklies will highlight topics such as Urban WASH, Indoor Air Pollution, Innovation, Household Water Treatment and Storage, Hand Washing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Dan Campbell, WASHplus Knowledge Resources Specialist, at dacampbell@fhi360.org.



About WASHplus - WASHplus, a five-year project funded through USAID’s Bureau for Global Health, supports healthy households and communities by creating and delivering interventions that lead to improvements in access, practice and health outcomes related to water, sanitation, hygiene (WASH) and indoor air pollution (IAP). WASHplus uses at-scale, targeted as well as integrated approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.